Refine Search

Search Results -

Terms	Documents
horwarth.in.	21

Database: US Pre-Grant Publication Full-Text Database; US Patents Full-Text Database; US OCR Full-Text Database; EPO Abstracts Database; JPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L12

Refine Search | Recall Text | Clear | Interrupt

Search History

DATE: Friday, May 06, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L12	horwarth.in.	21	L12
L11	L10 and l9	83	L11
L10	L8	65326	L10
DB=PGPB,USPT; PLUR=YES; OP=OR			
L9	myers.in.	5890	L9
DB=PGPB; PLUR=YES; OP=OR			
L8	L7 and splat assay	65326	L8
L7	L6 and (index)	49430	L7
L6	L5 and (measurement of ice grain size)	208781	L6
L5	(RI factor or recrystallization inhibition)	261650	L5
L4	L1 and (absolute value of the logarithm)	1	L4
L3	L1 and (RI or absolute value of the logaritym of the minimum THP dilution required to eliminate recrystalization inhibition activity)	1	L3
L2	L1 and (control solution is saline or phosphate buffered saline (PBS) or non-thermal hysteresis protein (THP))	1	L2
L1	20020172951	1	L1

END OF SEARCH HISTORY

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 10 of 21 returned.

☐ 1. Document ID: US 6810600 B1

Using default format because multiple data bases are involved.

L12: Entry 1 of 21 File: USPT Nov 2, 2004

US-PAT-NO: 6810600
DOCUMENT-IDENTIFIER: US 6810600 B1

TITLE: Apparatus and method for monitoring alignment of a CNC machine spindle trunnion axis A

DATE-ISSUED: November 2, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Horwarth; William A.	Mason	OH		
Howard; Walter S.	Cincinnati	OH		

US-CL-CURRENT: 33/645; 33/503, 33/533, 33/543, 33/567

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw Desc | Ima

☐ 2. Document ID: WO 2004110180 A1

L12: Entry 2 of 21 File: EPAB Dec 23, 2004

PUB-NO: WO2004110180A1
DOCUMENT-IDENTIFIER: WO 2004110180 A1
TITLE: METHOD FOR CONTROLLING AMBIENT CONDITIONS DURING TRANSPORTATION AND/OR STORAGE OF FOOD OR MUSEUM PIECES

PUBN-DATE: December 23, 2004

INVENTOR-INFORMATION:

NAME	COUNTRY
HORWARTH, FRIEDRICH G	DE

INT-CL (IPC): A23 L 3/3418; A23 L 3/3409; A23 B 7/148; B65 D 75/20; B65 D 88/74; B65 D 81/20; B65 B 25/00; B65 B 25/02; B65 B 25/04
EUR-CL (EPC): A23B007/148; A23L003/3409, A23L003/3409 , A23L003/3418 , B65B025/02 , B65B025/04 , B65B031/04 , B65D088/74 , B65D090/04

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw Desc | Ima

☐ 3. Document ID: EP 1375346 A2

L12: Entry 3 of 21 File: EPAB Jan 2, 2004

PUB-NO: EP001375346A2
DOCUMENT-IDENTIFIER: EP 1375346 A2

TITLE: Evacuation slide having trapezoidal outline

PUBN-DATE: January 2, 2004

INVENTOR-INFORMATION:

NAME	COUNTRY
DANIELSON, LEIBERT	US
HORWARTH, WILLIAM J	US
MENG, HAIWEN	US

INT-CL (IPC): B64 D 25/14; A62 B 1/20
EUR-CL (EPC): B64D025/14

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Ima

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☐ 4. Document ID: DE 10001033 A1

L12: Entry 4 of 21 File: EPAB Jul 19, 2001

PUB-NO: DE010001033A1
DOCUMENT-IDENTIFIER: DE 10001033 A1
TITLE: Actuator divides each cylinder space into two subchambers by hydraulic power-steering disks axially free between piston and cylinder head plus connection line to each subchamber.

PUBN-DATE: July 19, 2001

INVENTOR-INFORMATION:

NAME	COUNTRY
HORWARTH, JOCHEN	DE
ROSENFELD, ALBRECHT	DE

INT-CL (IPC): B62 D 5/12; B62 D 5/30; B62 D 5/22; F15 B 15/06; F15 B 9/10
EUR-CL (EPC): F15B020/00; B62D005/12, B62D005/30 , F15B015/08 , F15B018/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Ima

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☐ 5. Document ID: DE 19916717 A1

L12: Entry 5 of 21 File: EPAB Oct 19, 2000

PUB-NO: DE019916717A1
DOCUMENT-IDENTIFIER: DE 19916717 A1
TITLE: Food store fumigation process and equipment use atmosphere containing oxygen-depleted air and mixture of nitrogen oxides

PUBN-DATE: October 19, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
HORWARTH, FRIEDRICH G	DE

INT-CL (IPC): A23 L 3/3445
EUR-CL (EPC): A23B009/22; A23L003/3445

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Ima

☐ 6. Document ID: DE 4412438 C1

L12: Entry 6 of 21 File: EPAB Nov 16, 1995

PUB-NO: DE004412438C1
DOCUMENT-IDENTIFIER: DE 4412438 C1
TITLE: TITLE DATA NOT AVAILABLE

PUBN-DATE: November 16, 1995

INVENTOR-INFORMATION:

NAME	COUNTRY
PFLUG, HANS-CHRISTIAN DR ING	DE
HORWARTH, JOCHEN DIPL ING	DE

INT-CL (IPC): F02 N 11/08; F02 D 41/06; B60 K 26/00; F02 D 45/00
EUR-CL (EPC): F02N011/08

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Ima

☐ 7. Document ID: DE 4205686 A1

L12: Entry 7 of 21 File: EPAB Aug 26, 1993

PUB-NO: DE004205686A1
DOCUMENT-IDENTIFIER: DE 4205686 A1
TITLE: Gas exchange appts. - has eddy unit for media flow to give fluid where gas can be exchanged

PUBN-DATE: August 26, 1993

INVENTOR-INFORMATION:

NAME	COUNTRY
HORWARTH, FRIEDRICH G	DE

US-CL-CURRENT: 203/29
INT-CL (IPC): B01D 3/00; B01D 53/14; C02F 1/00; C02F 1/72
EUR-CL (EPC): B01D001/14; B01D053/18, C02F001/58 , C02F003/12 , C02F003/20

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Ima

☐ 8. Document ID: DE 3300013 A1

L12: Entry 8 of 21 File: EPAB Jul 12, 1984

PUB-NO: DE003300013A1
DOCUMENT-IDENTIFIER: DE 3300013 A1
TITLE: Apparatus and process for the production of flake ice

PUBN-DATE: July 12, 1984

INVENTOR-INFORMATION:

NAME	COUNTRY
HORWARTH, FRIEDRICH	DE

US-CL-CURRENT: 62/340
INT-CL (IPC): F25C 1/14

EUR-CL (EPC): F25B031/00; F25C001/14

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Ima

9. Document ID: DE 10327192 A1, WO 2004110180 A1

L12: Entry 9 of 21 File: DWPI Jan 13, 2005

DERWENT-ACC-NO: 2005-081279
DERWENT-WEEK: 200509
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: Ambient conditions control for foodstuffs and museum pieces, within shipping containers and the like, uses an airtight plastics film shrouding where oxygen is expelled and a monitor registers the oxygen levels

INVENTOR: HORWARTH, F G

PRIORITY-DATA: 2003DE-1027192 (June 17, 2003)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 10327192 A1	January 13, 2005		000	B65D088/74
WO 2004110180 A1	December 23, 2004	G	035	A23L003/3418

INT-CL (IPC): A23 B 7/148; A23 L 3/3409; A23 L 3/3418; B65 B 25/00; B65 B 25/02; B65 B 25/04; B65 D 75/20; B65 D 81/20; B65 D 88/12; B65 D 88/74

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Clip

10. Document ID: US 6810600 B1

L12: Entry 10 of 21 File: DWPI Nov 2, 2004

DERWENT-ACC-NO: 2004-755804
DERWENT-WEEK: 200474
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: Machine tool monitoring fixture for computer numerically controlled machine, has probe blocks with flat surfaces having normal lines parallel to spindle trunnion axis, arranged at different angular positions on case

INVENTOR: HORWARTH, W A; HOWARD, W S

PRIORITY-DATA: 2000US-0496249 (February 2, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6810600 B1	November 2, 2004		014	G01D021/00

INT-CL (IPC): G01 D 21/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Clip

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Terms	Documents

Display Format: - Change Format

Previous Page Next Page Go to Doc#

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 21 through 21 of 21 returned.

☐ 21. Document ID: DE 3300013 A

Using default format because multiple data bases are involved.

L12: Entry 21 of 21 File: DWPI Jul 12, 1984

DERWENT-ACC-NO: 1984-177637
DERWENT-WEEK: 198429
COPYRIGHT 2005 DERWENT INFORMATION LTD
TITLE: Flake ice making machine - has evaporation chamber formed by inner and outer casings with outlet ports

INVENTOR: HORWARTH, F

PRIORITY-DATA: 1983DE-3300013 (January 3, 1983)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 3300013 A	July 12, 1984		014	

INT-CL (IPC): F25C 1/14

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw Desc | Ima

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Terms	Documents
horwarth.in.	21

Display Format: - Change Format

Previous Page Next Page Go to Doc#

Refine Search

Search Results -

Terms	Documents
L9 and L12	0

Database: US Pre-Grant Publication Full-Text Database; US Patents Full-Text Database; US OCR Full-Text Database; EPO Abstracts Database; JPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L13

Refine Search | Recall Text | Clear | Interrupt

Search History

DATE: Friday, May 06, 2005 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L13	l9 and l12	0	L13
L12	horwarth.in.	21	L12
L11	L10 and l9	83	L11
L10	L8	65326	L10
DB=PGPB,USPT; PLUR=YES; OP=OR			
L9	myers.in.	5890	L9
DB=PGPB; PLUR=YES; OP=OR			
L8	L7 and splat assay	65326	L8
L7	L6 and (index)	49430	L7
L6	L5 and (measurement of ice grain size)	208781	L6
L5	(RI factor or recrystallization inhibition)	261650	L5
L4	L1 and (absolute value of the logarithm)	1	L4
L3	L1 and (RI or absolute value of the logaritym of the minimum THP dilution required to eliminate recrystalization inhibition activity)	1	L3
L2	L1 and (control solution is saline or phosphate buffered saline (PBS) or non-thermal hysteresis protein (THP))	1	L2
L1	20020172951	1	L1

END OF SEARCH HISTORY

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                   (ROSPATENT) added to list of core patent offices covered
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                   data from INPADOC
 NEWS  5  FEB 28   BABS - Current-awareness alerts (SDIs) available
 NEWS  6  FEB 28   MEDLINE/LMEDLINE reloaded
 NEWS  7  MAR 02   GBFULL: New full-text patent database on STN
 NEWS  8  MAR 03   REGISTRY/ZREGISTRY - Sequence annotations enhanced
 NEWS  9  MAR 03   MEDLINE file segment of TOXCENTER reloaded
 NEWS  10 MAR 22   KOREAPAT now updated monthly; patent information enhanced
 NEWS  11 MAR 22   Original IDE display format returns to REGISTRY/ZREGISTRY
 NEWS  12 MAR 22   PATDPASPC - New patent database available
 NEWS  13 MAR 22   REGISTRY/ZREGISTRY enhanced with experimental property tags
 NEWS  14 APR 04   EPFULL enhanced with additional patent information and new
                   fields
 NEWS  15 APR 04   EMBASE - Database reloaded and enhanced
 NEWS  16 APR 18   New CAS Information Use Policies available online
 NEWS  17 APR 25   Patent searching, including current-awareness alerts (SDIs),
                   based on application date in CA/CAplus and USPATFULL/USPAT2
                   may be affected by a change in filing date for U.S.
                   applications.
 NEWS  18 APR 28   Improved searching of U.S. Patent Classifications for
                   U.S. patent records in CA/CAplus

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               AND CURRENT DISCOVER FILE IS DATED 10 JANUARY 2005

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=> file medline, uspatful, dgene, embase, wpids, fsta, jicst, scisearch, biosis, biotechds
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                                                         ENTRY    SESSION
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FULL ESTIMATED COST                                    0.21       0.21

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=> s recrystallization inhibition
L1         111 RECRYSTALLIZATION INHIBITION

=> s l1 and grain size
L2           9 L1 AND GRAIN SIZE

=> s l1 and splat assay
L3           6 L1 AND SPLAT ASSAY

=> s l1 and index
L4           4 L1 AND INDEX

=> e horwath, k/au
E1          38     HORWATH WINTER J/AU
E2          12     HORWATH WINTER JUTTA/AU
E3           0 --> HORWATH, K/AU
E4           1     HORWATICH J A/AU
E5           1     HORWATIT H/AU
E6          20     HORWATITSCH H/AU
E7           3     HORWATT BOZYCZKO E/AU
E8           8     HORWATT E/AU
E9           3     HORWATT K/AU
E10          3     HORWATT P M/AU
E11          1     HORWATT PETER M/AU
E12          9     HORWATT R/AU

=> e meyers, k/au
E1           1     MEYERS ZU HERINGDORF D/AU
E2           1     MEYERS ZUM BUESCHENFELDE K H M/AU
E3           0 --> MEYERS, K/AU
E4           1     MEYERSABELL J/AU
E5          71     MEYERSABELLEK W/AU
E6          10     MEYERSABELLEK W A/AU
E7           2     MEYERSANDRIN V/AU
E8           1     MEYERSANTA A C C/AU
E9           9     MEYERSBACH P/AU
E10          1     MEYERSBACH PETER/AU
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E11          1     MEYERSBU HA/AU
E12          3     MEYERSBURG H/AU

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     (FILE 'HOME' ENTERED AT 10:35:35 ON 06 MAY 2005)

     FILE 'MEDLINE, USPATFULL, DGENE, EMBASE, WPIDS, FSTA, JICST-EPLUS,
     SCISEARCH, BIOSIS, BIOTECHDS' ENTERED AT 10:36:11 ON 06 MAY 2005
L1          111 S RECRYSTALLIZATION INHIBITION
L2            9 S L1 AND GRAIN SIZE
L3            6 S L1 AND SPLAT ASSAY
L4            4 S L1 AND INDEX
                E HORWATH, K/AU
                E MEYERS, K/AU

=> d l4 ti abs ibib tot

L4   ANSWER 1 OF 4  USPATFULL on STN
TI     COLD TOLERANCES IN PLANTS
AB     A plurality of polypeptides derived from intercellular spaces of plant
       cells having frost tolerance. Some of the polypeptides are ice
       nucleators for developing ice crystals in extracellular spaces of plant
       tissue, some of the polypeptides are antifreeze components which control
       ice crystal growth in extracellular spaces and some of the polypeptides
       are enzymes which adapt plant cell walls to function differently during
       formation of ice crystals in plant intercellular spaces.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER:        2003:30424  USPATFULL
TITLE:                   COLD TOLERANCES IN PLANTS
INVENTOR(S):             GRIFFITH, MARILYN, WATERLOO, ONTARIO, CANADA

                              NUMBER       KIND    DATE
                         ---------------- ------ --------
PATENT INFORMATION:      US 2003022371      A1   20030130
APPLICATION INFO.:       US 1999-362179     A1   19990727  (9)
RELATED APPLN. INFO.:    Continuation of Ser. No. US 1995-485647, filed on 7 Jun
                         1995, PATENTED Division of Ser. No. US 1995-419061,
                         filed on 10 Apr 1995, PATENTED Continuation of Ser. No.
                         US 1993-60425, filed on 11 May 1993, ABANDONED
                         Continuation-in-part of Ser. No. WO 1992-CA255, filed
                         on 12 Jun 1992, UNKNOWN

                               NUMBER        DATE
                         ------------------ --------
PRIORITY INFORMATION:    GB 1991-12774      19910613
                         GB 1991-26485      19911213
DOCUMENT TYPE:           Utility
FILE SEGMENT:            APPLICATION
LEGAL REPRESENTATIVE:    SAMUEL G LAYTON JR, BELL SELTZER PARK & GIBSON, POST
                         OFFICE DRAWER 34009, CHARLOTTE, NC, 28234
NUMBER OF CLAIMS:        23
EXEMPLARY CLAIM:         1
NUMBER OF DRAWINGS:      10 Drawing Page(s)
LINE COUNT:              1580
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4   ANSWER 2 OF 4  USPATFULL on STN
TI     Cold tolerances in plants
AB     A plurality of polypeptides derived from intercellular spaces of plant
       cells having frost tolerance. Some of the polypeptides are ice
       nucleators for developing ice crystals in extracellular spaces of plant
       tissue, some of the polypeptides are antifreeze components which control
       ice crystal growth in extracellular spaces and some of the polypeptides
       are enzymes which adapt plant cell walls to function differently during
       formation of ice crystals in plant intercellular spaces.
```

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1999:132568 USPATFULL
TITLE:	Cold tolerances in plants
INVENTOR(S):	Griffith, Marilyn, Waterloo, Canada
PATENT ASSIGNEE(S):	University of Waterloo, Ontario, Canada (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5972679		19991026
APPLICATION INFO.:	US 1995-485647		19950607 (8)

RELATED APPLN. INFO.: Division of Ser. No. US 1995-419061, filed on 10 Apr 1995, now patented, Pat. No. US 5852172 which is a continuation of Ser. No. US 1993-60425, filed on 11 May 1993, now abandoned which is a continuation-in-part of Ser. No. WO 1992-CA255, filed on 12 Jun 1992

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1991-12774	19910613
	GB 1991-26485	19911213

DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Weber, Jon P.
LEGAL REPRESENTATIVE:	Alston & Bird LLP
NUMBER OF CLAIMS:	35
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	27 Drawing Figure(s); 11 Drawing Page(s)
LINE COUNT:	1673

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 4 USPATFULL on STN

TI Cold tolerances in plants

AB A plurality of polypeptides derived from intercellular spaces of plant cells having frost tolerance. Some of the polypeptides are ice nucleators for developing ice crystals in extracellular spaces of plant tissue, some of the polypeptides are antifreeze components which control ice crystal growth in extracellular spaces and some of the polypeptides are enzymes which adapt plant cell walls to function differently during formation of ice crystals in plant intercellular spaces.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	1998:160102 USPATFULL
TITLE:	Cold tolerances in plants
INVENTOR(S):	Griffith, Marilyn, Waterloo, Canada
PATENT ASSIGNEE(S):	University of Waterloo, Ontario, Canada (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5852172		19981222
APPLICATION INFO.:	US 1995-419061		19950410 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1993-60425, filed on 11 May 1993, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1991-12774	19910613
	GB 1991-26485	19911213

DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Weber, Jon P.
LEGAL REPRESENTATIVE:	Bell Seltzer Intellectual Property Law Group of Alston & Bird LLP
NUMBER OF CLAIMS:	6
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	30 Drawing Figure(s); 12 Drawing Page(s)
LINE COUNT:	1529

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 4 OF 4 FSTA COPYRIGHT 2005 IFIS on STN
TI Genetic engineering of dairy starter cultures containing an antifreeze gene from Arctic fish.
AN 1995(11):P0053 FSTA
AB An antifreeze protein gene isolated from winter flounder fish was introduced into several commercial dairy starter cultures and its impact on ice **recrystallization inhibition** and cell viability/activity during frozen storage was determined. Antifreeze proteins inhibited ice recrystallization in Lactococcus cremoris AM2. There was no significant loss in cell viability/activity when parental strains were stored at -60°C, fast and slow freezing and storage at -15°C being the most detrimental conditions for all strains. Introduction of antifreeze proteins did not preserve cell viability/activity under these conditions (introduction of plasmids containing the antifreeze analogue fused to lactococcin A or β-galactose consistently reduced cell concentration and activity). [Further abstracts from this Meeting can be traced via the FSTA author **index**, under IFT Annual Meeting 1995. See FSTA (1995) 27 10A6. From En summ.]
TITLE: Genetic engineering of dairy starter cultures containing an antifreeze gene from Arctic fish.
AUTHOR: Reineccius, K.; McIntyre, D. A.; Stoddard, G. W.; Harlander, S. K.
CORPORATE SOURCE: IFT Annual Meeting 1995; Dep. of Food Sci. & Nutr., Univ. of Minnesota, St. Paul, MN 55108, USA
SOURCE: (1995) p. 185
DOCUMENT TYPE: Conference
LANGUAGE: English

=> d his

(FILE 'HOME' ENTERED AT 10:35:35 ON 06 MAY 2005)

FILE 'MEDLINE, USPATFULL, DGENE, EMBASE, WPIDS, FSTA, JICST-EPLUS, SCISEARCH, BIOSIS, BIOTECHDS' ENTERED AT 10:36:11 ON 06 MAY 2005
L1 111 S RECRYSTALLIZATION INHIBITION
L2 9 S L1 AND GRAIN SIZE
L3 6 S L1 AND SPLAT ASSAY
L4 4 S L1 AND INDEX
E HORWATH, K/AU
E MEYERS, K/AU

=> d l2 ti abs ibib tot

L2 ANSWER 1 OF 9 MEDLINE on STN
TI Solute effects on ice recrystallization: an assessment technique.
AB Reliable assessment of the effect of a solute upon ice recrystallization is accomplished with "splat cooling," the impaction of a small solution droplet onto a very cold metal plate. The ice disc has extremely small crystals, and recrystallization can be followed without confusing effects caused by grain nucleation. This method confirms the exceptionally strong **recrystallization inhibition** effect of antifreeze protein from Antarctic fish and shows that grain growth rate is a sensitive function of both **grain size** and solute concentration.
ACCESSION NUMBER: 88166054 MEDLINE
DOCUMENT NUMBER: PubMed ID: 3349811
TITLE: Solute effects on ice recrystallization: an assessment technique.
AUTHOR: Knight C A; Hallett J; DeVries A L
CORPORATE SOURCE: National Center for Atmospheric Research, Boulder, Colorado 80307.
SOURCE: Cryobiology, (1988 Feb) 25 (1) 55-60.
Journal code: 0006252. ISSN: 0011-2240.
PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 198804
ENTRY DATE: Entered STN: 19900308
Last Updated on STN: 19900308
Entered Medline: 19880428

L2 ANSWER 2 OF 9 USPATFULL on STN
TI Aluminum alloy excellent in cutting ability, aluminum alloy materials and manufacturing method thereof
AB A first aluminum alloy of the present invention comprises Mg: 0.3-6 mass %, Si: 0.3-10 mass %, Zn: 0.05-1 mass %, Sr: 0.001-0.3 mass % and the balance being Al and impurities. A second aluminum alloy further contains one or more selective additional elements selected from the group consisting of Cu, Fe, Mn, Cr, Zr, Ti, Na and Ca. Furthermore, a third aluminum alloy comprises Mg: 0.1-6 mass %, Si: 0.3-12.5 mass %, Cu: 0.01 mass % or more but less than 1 mass %, Zn: 0.01-3 mass %, Sr: 0.001-0.5 mass % and the balance being Al and impurities. Furthermore, a fourth aluminum alloy further includes one or more optional additional elements selected from the group consisting of Ti, B, C, Fe, Cr, Mn, Zr, V, Sc, Ni, Na, Sb, Ca, Sn, Bi and In.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 2003:206746 USPATFULL
TITLE: Aluminum alloy excellent in cutting ability, aluminum alloy materials and manufacturing method thereof
INVENTOR(S): Matsuoka, Hideaki, Oyama, JAPAN
Yamanaka, Masaki, Oyama, JAPAN
Yoshioka, Hiroki, Oyama, JAPAN
Okamoto, Yasuo, Kitakata, JAPAN
Kitamura, Masakatsu, Kitakata, JAPAN
PATENT ASSIGNEE(S): SHOWA DENKO K.K., Tokyo, JAPAN (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003143102	A1	20030731
APPLICATION INFO.:	US 2002-202669	A1	20020725 (10)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2001-224661	20010725
	JP 2002-148340	20020522
	US 2001-311363P	20010813 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C., 1940 DUKE STREET, ALEXANDRIA, VA, 22314
NUMBER OF CLAIMS: 119
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 7 Drawing Page(s)
LINE COUNT: 3143
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 3 OF 9 USPATFULL on STN
TI Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity
AB Thermal hysteresis proteins and their nucleotide sequences derived from the Tenebrionoidea Superfamily which lower the freezing point of a solution without effecting the melting point. Related methods for preparing said proteins and for providing antifreeze or **recrystallization inhibition** properties to a subject formulation.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 2002:307900 USPATFULL
TITLE: Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity

INVENTOR(S): Horwath, Kathleen L., Endwell, NY, UNITED STATES
Easton, Christopher M., Ithaca, NY, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002173024	A1	20021121
APPLICATION INFO.:	US 2001-876796	A1	20010607 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-210446P	20000608 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Mark Levy, SALZMAN & LEVY, Ste. 902, 19 Chenango St., Binghamton, NY, 13901
NUMBER OF CLAIMS: 40
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 131 Drawing Page(s)
LINE COUNT: 10082
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 4 OF 9 USPATFULL on STN
TI Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity
AB A **recrystallization inhibition** method for determining the presence, relative concentration, and/or activity of thermal hysteresis proteins comprising: providing a proteinaceous composition in a solvent to form a test solution; flash freezing said solution; raising the temperature of the frozen solution to an appropriate annealing temperature that allows for a partial melt, while limiting heterogeneity in ice grain sizes within said solution; maintaining said frozen solution at the annealing temperature for a length of time sufficient to allow for recrystallization; monitoring the ice crystal **grain size** changes over time; and determining the presence of functional thermal hysteresis proteins in said solution given the retention of significantly smaller ice crystal grain sizes relative to at least one control solution.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 2002:307828 USPATFULL
TITLE: Nucleic acid sequences encoding type III tenebrio antifreeze proteins and method for assaying activity
INVENTOR(S): Horwath, Kathleen L., Endwell, NY, UNITED STATES
Meyers, Kevin L., Trumansburg, NY, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002172951	A1	20021121
APPLICATION INFO.:	US 2001-876348	A1	20010607 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2000-210446P	20000608 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Mark Levy, SALZMAN & LEVY, Ste. 902, 19 Chenango St., Binghamton, NY, 13901
NUMBER OF CLAIMS: 34
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 131 Drawing Page(s)
LINE COUNT: 10121
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 5 OF 9 USPATFULL on STN
TI Process for the production of prestressed steels and its named product
AB In a process for producing high-strength, corrosion-resistant and brittle fracture-resistant prestressing steels, there is a fine grain and/or solid solution and/or particle or precipitation hardening, linked

with a thermodynamic treatment and subsequent strain hardening. As strengthening measures are used both a solid solution, fine grain and particle or precipitation hardening with a substantially additive effect. The thermomechanical treatment is performed by a controlled rolling of microalloyed, fine grain-melted steels, whilst excluding martensite formation.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER: 94:92958 USPATFULL
TITLE: Process for the production of prestressed steels and its named product
INVENTOR(S): Tischhauser, Max W., Weinmanngasse 26, Kuesnacht, Switzerland

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5358578		19941025
APPLICATION INFO.:	US 1993-4486		19930112 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1991-809228, filed on 17 Dec 1991, now abandoned which is a continuation of Ser. No. US 1991-674413, filed on 22 Mar 1991, now abandoned which is a continuation of Ser. No. US 1988-236693, filed on 25 Aug 1988, now abandoned which is a continuation-in-part of Ser. No. US 1986-887174, filed on 30 Jun 1986, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	CH 1984-5210843	19841030
	DE 1985-3535886	19851008

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Yee, Deborah
LEGAL REPRESENTATIVE: Young & Thompson
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 1310
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 6 OF 9 USPATFULL on STN
TI Method for producing alloyed tungsten rods
AB In a method for producing tungsten-alloyed rods, a particular tungsten electrodes for tungsten inert gas welding, tungsten plasma welding, tungsten plasma fusion cutting and the like, in which pulverulent tungsten with an admixed oxide additive is compacted, sintered, mechanically worked and submitted to a recrystallization treatment, to achieve a hitherto unobtained high lanthanum integration the pulverulent tungsten is alloyed with a highly pure relaxed lanthanum oxide additive of about 1.8 to 2.2% by weight with respect to the total weight the compacting is carried out with a multiphase pressure buildup and the sintering is carried out with a multiphase temperature buildup.

ACCESSION NUMBER: 90:36086 USPATFULL
TITLE: Method for producing alloyed tungsten rods
INVENTOR(S): Litty, Richard, Sondermoning, Germany, Federal Republic of
PATENT ASSIGNEE(S): Gesellschaft fur Wolfram-Industrie mbH, Traunstein, Germany, Federal Republic of (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4923673		19900508
APPLICATION INFO.:	US 1989-399620		19890828 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1988-3835328	19881017

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Lechert, Jr., Stephen J.
LEGAL REPRESENTATIVE: Spensley, Horn, Jubas & Lubitz
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Figure(s); 4 Drawing Page(s)
LINE COUNT: 367

L2 ANSWER 7 OF 9 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN
TI New cDNA polynucleotide encoding a thermal hysteresis protein which is a Type III anti-freeze protein derived from the Tenebrionoidea Superfamily, useful for providing antifreeze protection to improve the quality of food.
AN 2002-090137 [12] WPIDS
AB WO 200194378 A UPAB: 20020221
NOVELTY - A cDNA polynucleotide (I) comprising a nucleotide sequence for encoding a thermal hysteresis protein which is a Type III anti-freeze protein derived from the Tenebrionoidea Superfamily, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) a mRNA polynucleotide (II) comprising a nucleotide sequence for encoding thermal hysteresis proteins derived from the Tenebrionoidea Superfamily transcribed from (I);

(2) a DNA or RNA probe having a sequence complementary or identical to a sequence of contiguous nucleotides for at least a portion of (I);

(3) a recombinant vector containing (I);

(4) a thermal hysteresis protein, preferably an endogenous Type III anti-freeze proteins, derived from the Tenebrionoidea Superfamily which lowers the freezing point of a solution without effecting the melting point of the solution;

(5) a consensus sequence with a nucleotide sequence selected from one of the four 481 nucleotide sequences (S1-S4) defined in the specification;

(6) a consensus sequence with an amino acid sequence selected from the 133 (S5), 134 (S6), another 134 (S7), another 134 (S8) amino acid sequence defined in the specification;

(7) a consensus sequence with the 133 amino acid sequence (S9) defined in the specification;

(8) a primer having a nucleotide sequence selected from P1-P3;

(9) a method (M1) for producing a polypeptide having antifreeze properties comprising forming a cloning vector with a Tm 12.86 family member gene encoding an antifreeze polypeptide, transferring genes of the cloning vector into DNA of host cell to create a transformed cell, expressing a mRNA sequence and a translated amino acid sequence from the recombinant expression vector, the sequence being isoforms of the Tm 12.86 T. molitor antifreeze polypeptide;

(10) a method (M2) for providing antifreeze or **recrystallization inhibition** properties to a subject formulation comprising incorporating at least 0.1 micrograms to 1 mg of an activated polypeptide into 1 ml of a subject formulation to obtain **recrystallization inhibition** or 1 mg to 25 mg of the activated polypeptide into 1 ml of a subject formulation to thermal hysteresis;

(11) a Tm 12.86 antibody/antiserum;

(12) a **recrystallization inhibition** method (M3) for determining the presence, relative concentration, and/or activity of thermal hysteresis proteins comprising providing a proteinaceous composition in a solvent to form a test solution, flash freezing the solution, raising the temperature of the frozen solution to an appropriate annealing temperature that allows for a partial melt, while limiting heterogeneity in ice grain sizes within the solution, maintaining the frozen solution at the annealing temperature for a length of time sufficient to allow for recrystallization, monitoring the ice crystal **grain size** changes over time, and determining the presence of functional thermal hysteresis proteins in the solution given the retention of significantly smaller ice crystal grain sizes relative to at least one control solution;

(13) a method for quantitatively assessing the extent of recrystallization occurring in frozen foods, and the impact of solution

additives to inhibit or limit recrystallization according to the process defined in M3; and

(14) a method for quantitatively assessing and comparing the effectiveness of cryoprotective solutions on the extent of recrystallization occurring in cryopreserved cells, tissues, solutions and the like, according to the process defined in M3.

CGCGGATCCCTCACCGACGAACAG (P1);

GAGAGGATAACTAATTGAGCTCGCC (P2); and

CGCGGATCCCTGACCGAGGCACAA (P3).

USE - The activated anti-freeze protein is incorporated into:

(a) plant, produce or fish in an amount sufficient to provide antifreeze protection;

(b) a region of a target tissue in an amount sufficient to provide antifreeze protein controlled limited tumor cell or target tissue cryoinjury during cryosurgery;

(c) hypothermic solutions or bathing media to reduce cold damage in order to provide cryogenic or hypothermic preservation of cells and tissues by incorporating the protein into the cells, tissue, or cell membranes in a controlled amount sufficient to provide antifreeze protection;

(d) de-icing formulations or used on surfaces to reduce existing ice buildup or abate the formation of ice buildup on surfaces such as a road, aircraft, household products, cosmetic products, machinery and plant surfaces; or

(e) a food product in an amount sufficient to provide antifreeze protection to improve the quality of food by abating freezing of solutions, freezer burn, or degradation due to cold storage.

The polynucleotides for the activated protein are used to create transgenic or gene-modified plants, crops, fish, or animals having greater tolerance to cold climatization. The Tm 12.86 antibody/antiserum is used as a screening device to identify positive recombinant plaques containing cloned inserts capable in an expression vector system to produce recombinant products recognized by the antibody/antiserum. The Tm 12.86 antibody/antiserum which is also used as a screening device to screen cDNA libraries in an expression system, including cross-species cDNA libraries to identify homologous sequences in other species.

M3 is used for concurrent multiple sample testing of solutions which includes the 'sandwich' method; and application via a 96 well plate device (all claimed).

Dwg.0/8

ACCESSION NUMBER: 2002-090137 [12] WPIDS

DOC. NO. CPI: C2002-027870

TITLE: New cDNA polynucleotide encoding a thermal hysteresis protein which is a Type III anti-freeze protein derived from the Tenebrionoidea Superfamily, useful for providing antifreeze protection to improve the quality of food.

DERWENT CLASS: C06 D16

INVENTOR(S): HORWATH, K L; MEYERS, K L; EASTON, C M; MYERS, K L

PATENT ASSIGNEE(S): (EAST-I) EASTON C M; (HORW-I) HORWATH K L; (MYER-I) MYERS K L; (UYNY) UNIV NEW YORK STATE RES FOUND; (MEYE-I) MEYERS K L

COUNTRY COUNT: 91

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001094378	A1	20011213	(200212)*	EN	231
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW					
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW					
AU 2001075389	A	20011217	(200225)		
US 2002172951	A1	20021121	(200279)		
US 2002173024	A1	20021121	(200279)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001094378	A1	WO 2001-US18532	20010607
AU 2001075389	A	AU 2001-75389	20010607
US 2002172951	A1 Provisional	US 2000-210446P	20000608
		US 2001-876348	20010607
US 2002173024	A1 Provisional	US 2000-210446P	20000608
		US 2001-876796	20010607

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2001075389	A	Based on	WO 2001094378

PRIORITY APPLN. INFO: US 2000-210446P 20000608; US 2001-876348 20010607; US 2001-876796 20010607

L2 ANSWER 8 OF 9 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
TI SOLUTE EFFECTS ON ICE RECRYSTALLIZATION AN ASSESSMENT TECHNIQUE.
AB Reliable assessment of the effect of a solute upon ice recrystallization is accomplished with "splat cooling," the impaction of a small solution droplet onto a very cold metal plate. The ice disc has extremely small crystals, and recrystallization can be followed without confusing effects caused by grain nucleation. This method confirms the exceptionally strong **recrystallization inhibition** effect of antifreeze protein from Antarctic fish and shows that grain growth rate is a sensitive function of both **grain size** and solute concentration.
ACCESSION NUMBER: 1988:183973 BIOSIS
DOCUMENT NUMBER: PREV198885096075; BA85:96075
TITLE: SOLUTE EFFECTS ON ICE RECRYSTALLIZATION AN ASSESSMENT TECHNIQUE.
AUTHOR(S): KNIGHT C A [Reprint author]; HALLETT J; DEVRIES A L
CORPORATE SOURCE: NATL CENTER ATMOSPHERIC RES, BOULDER, COLORADO 80307, USA
SOURCE: Cryobiology, (1988) Vol. 25, No. 1, pp. 55-60.
CODEN: CRYBAS. ISSN: 0011-2240.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 11 Apr 1988
Last Updated on STN: 11 Apr 1988

L2 ANSWER 9 OF 9 BIOTECHDS COPYRIGHT 2005 THE THOMSON CORP. on STN
TI New cDNA polynucleotide encoding a thermal hysteresis protein which is a Type III anti-freeze protein derived from the Tenebrionoidea Superfamily, useful for providing antifreeze protection to improve the quality of food;
phagemid vector-mediated recombinat protein gene transfer and expression in bacterium cell, transgenic plant, transgenic fish and transgenic animal for cold climatization enhancement
AN 2002-07231 BIOTECHDS
AB DERWENT ABSTRACT:
NOVELTY - A cDNA polynucleotide (I) comprising a nucleotide sequence for encoding a thermal hysteresis protein which is a Type III anti-freeze protein derived from the Tenebrionoidea Superfamily, is new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following: (1) a mRNA polynucleotide (II) comprising a nucleotide sequence for encoding thermal hysteresis proteins derived from the Tenebrionoidea Superfamily transcribed from (I); (2) a DNA or RNA probe having a sequence complementary or identical to a sequence of contiguous nucleotides for at least a portion of (I);(3) a recombinant vector containing (I); (4) a thermal hysteresis protein, preferably an endogenous Type III anti-freeze proteins, derived from the Tenebrionoidea Superfamily which lowers the freezing point of a solution without effecting the melting point of the solution; (5) a consensus sequence

with a nucleotide sequence selected from one of the four 481 nucleotide sequences (S1-S4) defined in the specification; (6) a consensus sequence with an amino acid sequence selected from the 133 (S5), 134 (S6), another 134 (S7), another 134 (S8) amino acid sequence defined in the specification; (7) a consensus sequence with the 133 amino acid sequence (S9) defined in the specification; (8) a primer having a nucleotide sequence selected from P1-P3; (9) a method (M1) for producing a polypeptide having antifreeze properties comprising forming a cloning vector with a Tm 12.86 family member gene encoding an antifreeze polypeptide, transferring genes of the cloning vector into DNA of host cell to create a transformed cell, expressing a mRNA sequence and a translated amino acid sequence from the recombinant expression vector, the sequence being isoforms of the Tm 12.86 T. molitor antifreeze polypeptide; (10) a method (M2) for providing antifreeze or **recrystallization inhibition** properties to a subject formulation comprising incorporating at least 0.1 micrograms to 1 mg of an activated polypeptide into 1 ml of a subject formulation to obtain **recrystallization inhibition** or 1 mg to 25 mg of the activated polypeptide into 1 ml of a subject formulation to thermal hysteresis; (11) a Tm 12.86 antibody/antiserum; (12) a **recrystallization inhibition** method (M3) for determining the presence, relative concentration, and/or activity of thermal hysteresis proteins comprising providing a proteinaceous composition in a solvent to form a test solution, flash freezing the solution, raising the temperature of the frozen solution to an appropriate annealing temperature that allows for a partial melt, while limiting heterogeneity in ice grain sizes within the solution, maintaining the frozen solution at the annealing temperature for a length of time sufficient to allow for recrystallization, monitoring the ice crystal **grain size** changes over time, and determining the presence of functional thermal hysteresis proteins in the solution given the retention of significantly smaller ice crystal grain sizes relative to at least one control solution; (13) a method for quantitatively assessing the extent of recrystallization occurring in frozen foods, and the impact of solution additives to inhibit or limit recrystallization according to the process defined in M3; and (14) a method for quantitatively assessing and comparing the effectiveness of cryoprotective solutions on the extent of recrystallization occurring in cryopreserved cells, tissues, solutions and the like, according to the process defined in M3. CGCGGATCCCTCACCGACGAACAG (P1); GAGAGGATAACTAATTGAGCTCGCC (P2); and CGCGGATCCCTGACCGAGGCACAA (P3).

BIOTECHNOLOGY - Preferred Protein: The thermal hysteresis protein is from the group consisting of Tm 12.86, Tm 2.2, Tm 3.4, Tm 3.9, Tm 7.5, Tm 2.3, Tm 13.17, Tm 12.84 or their isoforms. The thermal hysteresis protein has an amino acid sequence selected from one of the 39 sequenced defined in the specification or S5-S9. Preferred Nucleic Acid: In (I) and (II), the nucleotide sequence is selected from one of the 18 nucleotide sequences (S10) defined in the specification, or S1-S4, or their respective complements. The nucleotide sequence further includes a 5' end selected from non-his/signal plus, non-his/signal minus, his/signal plus and his/signal minus. Preferred Method: M1 further comprises isolating the amino acid sequence and establishing antifreeze protein activity for the amino acid sequence. The amino acid sequence is selected from S5-S9. The polypeptide has an apparent molecular weight from about 11000 to 25000 Daltons. Isolating the amino acid sequence comprises extraction from inclusion bodies within the transformed host bacterial cell. Establishing activity further comprises denaturing and extracting proteins from the transformed cells followed by renaturizing and purifying the polypeptide, followed by further denaturing and refolding. The activity step provides antifreeze polypeptide activity as measured by thermal hysteresis or antifreeze specific **recrystallization inhibition**. In M2, the activated polypeptide provides a non-colligative freezing point depression and an antifreeze specific inhibition of recrystallization. M2 further comprising an enhancing activator species. The activator is an endogenous activator from T. molitor or Tm 12.86 antisera. In M3, the solvent selected from water, saline, phosphate buffered saline (PBS), or other isoosmotic inorganic or organic solutions. Two or more control solutions are used, where one

control is the solvent and the other is a control for non-specific **recrystallization inhibition** effects. The proteinaceous composition is selected from antifreeze polypeptides (such as a thermal hysteresis protein, e.g. purified Tm 12.86 or Tm 12.84, with a known activity), antifreeze glycopeptides, recombinant antifreeze polypeptides, recombinant antifreeze glycopeptides, synthetic antifreeze polypeptides analogs, synthetic antifreeze glycopeptide analogs, cell culture products, activator, recombinant bacterial products, recombinant products, uncharacterized plant products and transgenic plant products. Alternatively, the proteinaceous composition has unknown functional antifreeze protein activity. The protein composition of Tm 12.86 is 0.5 micrograms to 25 micrograms/ml. The protein content is less than or equal to 1 mg/ml in saline and PBS, and less than or equal to 0.005 mg/ml in water. The **recrystallization inhibition** method is carried out under conditions to eliminate non-thermal hysteresis protein induced **recrystallization inhibition** effects. The conditions in saline are at -6 degrees Centigrade for 30 minutes with total protein content less than or equal to 1 mg/ml; or in water at -2 degrees Centigrade for 2 hours with total protein content less than or equal to 0.005 mg/ml. The **recrystallization inhibition** method is carried out under conditions to avoid hyperosmotic solutions. Monitoring of ice crystal **grain size** changes over time is by photomicroscopy, digital or video imaging. The quantitative data is collected by measurement of the mean largest ice **grain size** for both the test and control solutions to provide a basis for numerical assessment of the extent of **recrystallization inhibition** occurring. The composite mlgs are obtained for the test solution and the control solution, which are then statistically compared. The quantitative data collection is collected by assessment using a densitometer of light transmitted through a low magnification full view photographic negative of frozen sample wafer; absorbance peaks for the test solution is evaluated for maximum amplitude and statistically compared with the control solution. The dilution profile of the test solution is obtained over a wide dilution range until mlgs, or another quantifiably assessed response variable, are no longer significantly different from the saline/PBS and/or non-THP containing proteinaceous control solutions. The composite mlgs, or absorbance peak area (light scattering), or computer generated units (digital/video imaging)) are calculated for the test solution and plotted as a function of the logarithm of sample concentration, with replicate dilution series tested, and compared to control solution baseline. The linear regression analyses is used to approximate the linear portion of the dilution profile, with application of a transforming function (arcsine((mlgs)0.5) verses log(dilution)) to mlgs to limit inherent curvature of dilution plots caused by the 'leveling off' of mlgs values for both very dilute and very concentrated thermal hysteresis protein samples. The linear regression analyses provides the basis for development of a numerical factor (RI factor) describing the activity of the test solution with respect to **recrystallization inhibition** capability.

The RI factor is equal to the absolute value of the logarithm of the minimum test solution dilution required to eliminate **recrystallization inhibition** activity. The RI factor is a measure of test solution **recrystallization inhibition** strength, according to the assessed exponential factor required for sufficient dilution of test solution to lose **recrystallization inhibition** activity, and providing a relative assessment of functional thermal hysteresis concentration within the test solution. The RI factor provides a relative assessment of functional thermal hysteresis protein concentration, and comparisons of various test solutions concentrations given translational shifts along the X axis. The regression line slope and Y-intercept reflect the **recrystallization inhibition** potency of a given test solution, thermal hysteresis protein species, recombinant thermal hysteresis protein product, synthetic thermal hysteresis analogue, or the like. The slope comparisons and shifts along Y-intercept provide relative potency comparisons between test solutions, thermal hysteresis species and the like. The expected concentrations of Tm 12.86 producing equivalent RI profiles are deduced, and provide reference interpretations

of the test solution(s) functional activity(ies) to an antifreeze protein of known characterized parameters experimentally measured. The activity and potency of the test solution may include a combination of more than one type of thermal hysteresis protein, and/or thermal hysteresis protein plus activator solutions such as in test solution of hemolymph, or artificial solutions containing known amounts of purified thermal hysteresis protein with an activator supplement. M3 further comprises mathematical modeling of the **recrystallization inhibition** process with prediction of effects on slope and Y-intercept and log/log transformations for test solution mlgs data and analysis. The relationship between RI factors and thermal hysteresis levels for functionally active test solutions are described by equation: RI factor = 1.428 LOG(TH) + 3.703. A random sampling method is used for data collection generating mlgs which significantly eliminates the impact of intrasample ice crystal grain heterogeneity at high annealing temperature and with saline/PBS solvents.

USE - The activated anti-freeze protein is incorporated into: (a) plant, produce or fish in an amount sufficient to provide antifreeze protection; (b) a region of a target tissue in an amount sufficient to provide antifreeze protein controlled limited tumor cell or target tissue cryoinjury during cryosurgery; (c) hypothermic solutions or bathing media to reduce cold damage in order to provide cryogenic or hypothermic preservation of cells and tissues by incorporating the protein into the cells, tissue, or cell membranes in a controlled amount sufficient to provide antifreeze protection; (d) de-icing formulations or used on surfaces to reduce existing ice buildup or abate the formation of ice buildup on surfaces such as a road, aircraft, household products, cosmetic products, machinery and plant surfaces; or (e) a food product in an amount sufficient to provide antifreeze protection to improve the quality of food by abating freezing of solutions, freezer burn, or degradation due to cold storage. The polynucleotides for the activated protein are used to create transgenic or gene-modified plants, crops, fish, or animals having greater tolerance to cold climatization. The Tm 12.86 antibody/antiserum is used as a screening device to identify positive recombinant plaques containing cloned inserts capable in an expression vector system to produce recombinant products recognized by the antibody/antiserum. The Tm 12.86 antibody/antiserum which is also used as a screening device to screen cDNA libraries in an expression system, including cross-species cDNA libraries to identify homologous sequences in other species. M3 is used for concurrent multiple sample testing of solutions which includes the 'sandwich' method; and application via a 96 well plate device (all claimed).

EXAMPLE - mRNA isolated from winter-acclimated whole animal and fat body of T. molitor were used as starting material to construct cDNA libraries. The ZAP express cDNA synthesis kit purchased from Stratagene was used for synthesis of cDNA. The detailed protocols suggested by the manufacturer were followed. The above cDNAs were applied to the Sephacryl 5-500 spin column to get rid of small pieces and uncomplete cDNA. Fractions were collected after each spin. Then each fraction was precipitated and ligated to the ZAP express vector arms, which generated libraries with different size of cDNA inserts. The ligated ZAP express vector was packaged into lambda phage particles using ZAP express cDNA Glgapack Gold Cloning Kit (Stratagene), i.e. packaging the vector with lambda coat protein to have viable phage activity. The cDNA libraries were amplified by plating on NZY plates with XL 1-blue MRF' strain (Stratagene). Phages were plated at high density with 50000 plaque forming units (pfu) per plate (150 mm) as recommended by Stratagene in the PicoBlue immunoscreening kit. Briefly, the XL1-blue MRF' cells were cultured overnight in NZY medium (5 g NaCl, 2 g MgSO4.7H2O, 5 g yeast extract, 10 g NZ amine (casein hydrolysate), 15 g agar per liter at pH 7.5) supplemented with 10 mM MgSO4 and 0.2%(v/v) of maltose. When the cell density reached OD600 of 1.0 the cells were pelleted and resuspended with sterilized 10 mM MgSO4 and diluted to a final OD600 of 0.5. A portion of this XL1-Blue MRF' cell suspension was mixed with phages and incubated for 15 minutes at 37 degrees Centigrade, then the 30 melted NZY top agar (5 g NaCl, 2 g MgSO4.7H2O, 5 g yeast extract, 10 g NZ amine and 0.7 %(v/v) agarose, pH 7.5) was added and mixed. The mixture was immediately poured onto the surface of a pre-prepared agar plates and

left to solidify at room temperature. The agar plates were then incubated at 42 degrees Centigrade for 5 hours. During incubation the nitrocellulose membranes (Stratagene) were submerged in 10 mM IPTG (isopropyl-1-thio-Beta-D-galactopyranoside) solution. After completely wetting the nitrocellulose membranes, they were placed on Whatman 3 mm paper to air dry. When small plaques became visible in plates, the plates were covered with the treated nitrocellulose membranes and incubated for another 3-5 hours or overnight at 37 degrees Centigrade. The expression of cDNA in the vector is induced by IPTG absorbed in the membrane and the expressed proteins would be transferred to the membrane via plaque lift process. The lifted nitrocellulose membranes were washed in phosphate buffered saline (PBS) buffer and subjected to immunoblot screening. The nitrocellulose membranes obtained during the phage lift were washed in PBS (0.002 M KCl, 0.14 M NaCl, 0.01 M Na2HPO4, 0.0015M KH2PO4, pH 7.2) after lifting. The wash was usually carried out for 3 times with shaking, each lime for 5 mm. The membrane was first blocked with fresh 5 % nonfat dry milk in PBS buffer for one hour with gentle agitation and then washed with PBS as described above. To block the possible endogenous perixodases in the membrane, the membrane then was incubated with fresh 0.5 % H2O2 for 5-30 mm and followed by washing with PBS for three times. Next, the membrane was incubated in the primary antibody against Tm 12.86 kD antifreeze protein (primary antibody serum was diluted at 1:1000 with PBS) for one to two hours with gentle shaking at room temperature, then washed with PBS for three times. The membrane was incubated with a 1:500 dilution second antibody (peroxidase-conjugate goat-anti-rabbit, Sigma) for one to two hours and washed with PBS as above. Finally, the membrane was colorized with 15 ml of DAB solution (3,3'-Diaminobenzidine Tetrahydrochloride; Fast Dab: Sigma) with gentle agitation until purple dots (positive clones) were visualized. The DAB reaction was stopped by washing the membrane with PBS. The membrane was dried in air for preservation. Plaques corresponding to positive dots in the membrane were marked for further evaluation including purification and isolation. Several single immunologically positive plaques from each of the two cDNA libraries (F5+6 (WB) and F3....6 (FB)) containing small cDNA fragments were used for excision following the single-clone excision protocol described in the ZAP express cDNA synthesis kit (Stratagene). Individual positive plaques obtained from initial screening were further purified and isolated in low concentration of pfu from NZY agar plates and stored in a tube containing 500 microlitres of phage stock buffer (SM buffer) (0.1M NaCl; 0.017 M MgSO4.7H2O, 0.05M Tris-HCl, pH 7.5; 1% (W/V) gelatin, 20 microlitres of chloroform). XL1-Blue MRF' and XLOLR cells were grown separately overnight in NZY broth (5 g of NaCl; 2g of MgSO4.7H2O; 5 g of yeast extract; 10 g of NZ amine with deionized H2O added to a final volume of 1 liter; and pH to 7.5 with NaOH) at 30 degrees Centigrade. Then cells were pelleted and resuspend in 10 mM MgSO4 at a concentration of 1.0 determined spectrophotometry at OD600. First, 200 microlitres of XL1-Blue MRF' cells were mixed with 250 microlitres of the phage stock and 1 microlitre of ExAssist helper phage and the mixture was incubated in a Falcon polypropylene tube at 37 degrees Centigrade for 15 minutes, then 3 ml of NZY broth was added and the solution was incubated for 2.5 -3 hours at 37 degrees Centigrade with shaking. Next, the solution was heated at 65-70 degrees Centigrade for 20 minutes and spun down at 1000 x g for 15 minutes. The supernatant containing the excised pBK-CMV ss DNA phagemid packaged as filamentous phage particles was saved. To get colonies from the phagemid, 200 microlitres of freshly grown XLOLR cells were mixed with 10 microlitres of the excised phagemids. After incubation at 37 degrees Centigrade for 15 minutes, 300 microlitres of NZY broth was added and incubated at 37 degrees Centigrade for another 45 minutes. 200 microlitres of the cell mixture was plated on each LB (loria broth))-kanamycin agar plate and incubated overnight at 37 degrees Centigrade. Next day many colonies would appear on the plates which contain the pBK-CMV double-stranded phagemid vector with the cloned cDNA insert. cDNA was isolated from phagemid using the 'plasmid boiling miniprep protocol' from Stratagene. In general, the method for DNA digestion was as follows. A certain amount (2 micrograms) of plasmid DNA was added to a 1.5 ml microcentrifuge tube containing 3 microlitres of universal buffer (Stratagene) was added and then appropriate amount (following recommendation by Stratagene) of restriction enzymes of Xhol

and EcoRl were added. The final volume was brought to 20 microllitres with dH2O and incubated at 37 degrees Centigrade for 1 hour. The digested DNA solution was subjected to electrophoresis in 1.0 % agarose gel or stored at -20 degrees Centigrade. Seven out of 30 recombinant plasmids detected by antiserium against Tm 12.86, each containing about 500 base pairs (bps) following digestion by XLo I andEco RI were selected for nucleotide sequencing. These clones were initially sequenced by the dideoxy chain termination method using the Sequenase sequencing kit (version 2.0) from U.S. Biochemical Corp. and a 35S-dATP from Du pont NEN. Both T7 and T3 primers, complementary to the sequence of the vector were used. The purified plasmid DNA was denatured with 0.2 M NaOH containing 0.2 mM EDTA, then neutralized with 0.6 M sodium acetate, pH 5.2 and precipitated with ethanol prior to sequencing. Sequence reaction followed the instruction provided by USB and sequence reaction products (about 3 microlitres) were loaded on 6 % polyacrylamide gel for electrophoresis at a constant power (1500V). After the blue dye reached the bottom of the plate, the gel was placed onto a piece of filter paper and dried under heat (80 degrees Centigrade) and vacuumed on a slab gel drying apparatus. The dried gel was exposed to Fuji X-ray film overnight or longer depending on the count of the radio-activity from the monitor. The film was developed according to the instructions provided. After DNA sequence was read, DNA and predicted protein sequences were analyzed with FASTA and Genetics Computer Group version 7.1 programs. Subsequent sequencing was obtained via an automated DNA sequencer.(231 pages)

ACCESSION NUMBER: 2002-07231 BIOTECHDS
TITLE: New cDNA polynucleotide encoding a thermal hysteresis protein which is a Type III anti-freeze protein derived from the Tenebrionoidea Superfamily, useful for providing antifreeze protection to improve the quality of food;
phagemid vector-mediated recombinat protein gene transfer and expression in bacterium cell, transgenic plant, transgenic fish and transgenic animal for cold climatization enhancement
AUTHOR: HORWATH K L; MYERS K L; EASTON C M
PATENT ASSIGNEE: UNIV NEW YORK STATE RES FOUND; HORWATH K L; MYERS K L; EASTON C M
PATENT INFO: WO 2001094378 13 Dec 2001
APPLICATION INFO: WO 2000-US18532 8 Jun 2000
PRIORITY INFO: US 2000-210446 8 Jun 2000
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2002-090137 [12]

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(FILE 'HOME' ENTERED AT 10:35:35 ON 06 MAY 2005)

FILE 'MEDLINE, USPATFULL, DGENE, EMBASE, WPIDS, FSTA, JICST-EPLUS, SCISEARCH, BIOSIS, BIOTECHDS' ENTERED AT 10:36:11 ON 06 MAY 2005
L1 111 S RECRYSTALLIZATION INHIBITION
L2 9 S L1 AND GRAIN SIZE
L3 6 S L1 AND SPLAT ASSAY
L4 4 S L1 AND INDEX
E HORWATH, K/AU
E MEYERS, K/AU

=> d l3 ti abs ibib tot

L3 ANSWER 1 OF 6 USPATFULL on STN
TI Carrot antifreeze polypeptides
AB Novel antifreeze polypeptides which can be easily obtained from an abundant natural source. Antifreeze polypeptides obtained from carrots show markedly better properties as compared to polypeptides obtained from other vegetables. The antifreeze polypeptides of the invention are capable of providing good **recrystallization inhibition** properties without significantly changing the crystal shape of the ice-crystals, therewith possibly leading to more favorable properties,

e.g., soft ice-cream.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	2004:242052 USPATFULL
TITLE:	Carrot antifreeze polypeptides
INVENTOR(S):	Byass, Louise Jane, Alberta, CANADA Doucet, Charlotte Juliette, York, UNITED KINGDOM Fenn, Richard Anthony, Bedford, UNITED KINGDOM McArthur, Andrew John, Bedford, UNITED KINGDOM Sidebottom, Christopher Michael, Bedford, UNITED KINGDOM Smallwood, Margaret Felicia, York, UNITED KINGDOM
PATENT ASSIGNEE(S):	Good Humor -- Breyers Ice Cream, division of Conopco, Inc., Green Bay, WI, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6797690	B1	20040928	
	WO 9822591		19980528	
APPLICATION INFO.:	US 1999-308140		19991230	(9)
	WO 1997-EP6181		19971106	

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1996-308362	19961119

DOCUMENT TYPE:	Utility
FILE SEGMENT:	GRANTED
PRIMARY EXAMINER:	Carlson, Karen Cochrane
ASSISTANT EXAMINER:	Liu, Samuel Wei
LEGAL REPRESENTATIVE:	McGowan, Jr., Gerard J.
NUMBER OF CLAIMS:	16
EXEMPLARY CLAIM:	1
NUMBER OF DRAWINGS:	0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT:	1022

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 2 OF 6 USPATFULL on STN

TI COLD TOLERANCES IN PLANTS

AB A plurality of polypeptides derived from intercellular spaces of plant cells having frost tolerance. Some of the polypeptides are ice nucleators for developing ice crystals in extracellular spaces of plant tissue, some of the polypeptides are antifreeze components which control ice crystal growth in extracellular spaces and some of the polypeptides are enzymes which adapt plant cell walls to function differently during formation of ice crystals in plant intercellular spaces.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	2003:30424 USPATFULL
TITLE:	COLD TOLERANCES IN PLANTS
INVENTOR(S):	GRIFFITH, MARILYN, WATERLOO, ONTARIO, CANADA

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2003022371	A1	20030130	
APPLICATION INFO.:	US 1999-362179	A1	19990727	(9)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1995-485647, filed on 7 Jun 1995, PATENTED Division of Ser. No. US 1995-419061, filed on 10 Apr 1995, PATENTED Continuation of Ser. No. US 1993-60425, filed on 11 May 1993, ABANDONED Continuation-in-part of Ser. No. WO 1992-CA255, filed on 12 Jun 1992, UNKNOWN			

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1991-12774	19910613
	GB 1991-26485	19911213

DOCUMENT TYPE:	Utility
FILE SEGMENT:	APPLICATION

LEGAL REPRESENTATIVE: SAMUEL G LAYTON JR, BELL SELTZER PARK & GIBSON, POST OFFICE DRAWER 34009, CHARLOTTE, NC, 28234
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Page(s)
LINE COUNT: 1580
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 3 OF 6 USPATFULL on STN
TI Frozen food product
AB Plant anti freeze proteins can advantageously be incorporated into frozen confectionery products, provided they have the capability of limiting the growth of ice crystals

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 2000:98549 USPATFULL
TITLE: Frozen food product
INVENTOR(S): Byass, Louise Jane, Heslington, United Kingdom
Darling, Donald Frank, Colworth, United Kingdom
Doucet, Charlotte Juliette, Heslington, United Kingdom
Fenn, Richard Anthony, Colworth, United Kingdom
Lillford, Peter John, Colworth, United Kingdom
McArthur, Andrew John, Colworth, United Kingdom
Needham, David, Colworth, United Kingdom
Sidebottom, Christopher, Colworth, United Kingdom
Smallwood, Keith, Colworth, United Kingdom
Smallwood, Margaret Felicia, Heslington, United Kingdom
PATENT ASSIGNEE(S): Good Humor-Breyers Ice Cream, Division of Conopco, Inc., Green Bay, WI, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6096867		20000801	
APPLICATION INFO.:	US 1997-898351		19970722	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	EP 1996-305499	19960706
	EP 1996-305497	19960716
	EP 1996-308362	19961119
	EP 1997-301719	19970314
	EP 1997-301733	19970314

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Davenport, Avis M.
LEGAL REPRESENTATIVE: Farrell, James J.
NUMBER OF CLAIMS: 9
EXEMPLARY CLAIM: 1
LINE COUNT: 923
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 4 OF 6 USPATFULL on STN
TI Cold tolerances in plants
AB A plurality of polypeptides derived from intercellular spaces of plant cells having frost tolerance. Some of the polypeptides are ice nucleators for developing ice crystals in extracellular spaces of plant tissue, some of the polypeptides are antifreeze components which control ice crystal growth in extracellular spaces and some of the polypeptides are enzymes which adapt plant cell walls to function differently during formation of ice crystals in plant intercellular spaces.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 1999:132568 USPATFULL
TITLE: Cold tolerances in plants
INVENTOR(S): Griffith, Marilyn, Waterloo, Canada
PATENT ASSIGNEE(S): University of Waterloo, Ontario, Canada (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5972679		19991026
APPLICATION INFO.:	US 1995-485647		19950607 (8)

RELATED APPLN. INFO.: Division of Ser. No. US 1995-419061, filed on 10 Apr 1995, now patented, Pat. No. US 5852172 which is a continuation of Ser. No. US 1993-60425, filed on 11 May 1993, now abandoned which is a continuation-in-part of Ser. No. WO 1992-CA255, filed on 12 Jun 1992

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1991-12774	19910613
	GB 1991-26485	19911213

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Weber, Jon P.
LEGAL REPRESENTATIVE: Alston & Bird LLP
NUMBER OF CLAIMS: 35
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 27 Drawing Figure(s); 11 Drawing Page(s)
LINE COUNT: 1673
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 5 OF 6 USPATFULL on STN
TI Cold tolerances in plants
AB A plurality of polypeptides derived from intercellular spaces of plant cells having frost tolerance. Some of the polypeptides are ice nucleators for developing ice crystals in extracellular spaces of plant tissue, some of the polypeptides are antifreeze components which control ice crystal growth in extracellular spaces and some of the polypeptides are enzymes which adapt plant cell walls to function differently during formation of ice crystals in plant intercellular spaces.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
ACCESSION NUMBER: 1998:160102 USPATFULL
TITLE: Cold tolerances in plants
INVENTOR(S): Griffith, Marilyn, Waterloo, Canada
PATENT ASSIGNEE(S): University of Waterloo, Ontario, Canada (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5852172		19981222
APPLICATION INFO.:	US 1995-419061		19950410 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1993-60425, filed on 11 May 1993, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	GB 1991-12774	19910613
	GB 1991-26485	19911213

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Weber, Jon P.
LEGAL REPRESENTATIVE: Bell Seltzer Intellectual Property Law Group of Alston & Bird LLP
NUMBER OF CLAIMS: 6
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 30 Drawing Figure(s); 12 Drawing Page(s)
LINE COUNT: 1529
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 6 OF 6 USPATFULL on STN
TI Ice crystal growth suppression polypeptides and method of making
AB Novel methods of improving freezing tolerance of organic materials through the use of antifreeze polypeptides is provided. These polypeptides increase the storage life of foodstuffs and biologics, as

well as protect plant products, such as during growth. The antifreeze polypeptides, or their fusion proteins, may be produced chemically or by recombinant DNA techniques, and then purified for a variety of uses.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

ACCESSION NUMBER:	92:44933 USPATFULL
TITLE:	Ice crystal growth suppression polypeptides and method of making
INVENTOR(S):	Warren, Gareth J., San Francisco, CA, United States Mueller, Gunhild M., San Francisco, CA, United States McKown, Robert L., Albany, CA, United States
PATENT ASSIGNEE(S):	DNA Plant Technology Corporation, Oakland, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5118792		19920602	
APPLICATION INFO.:	US 1989-350481		19890510	(7)
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	Granted			
PRIMARY EXAMINER:	Robinson, Douglas W.			
ASSISTANT EXAMINER:	Weber, Jon P.			
LEGAL REPRESENTATIVE:	Townsend and Townsend			
NUMBER OF CLAIMS:	7			
EXEMPLARY CLAIM:	1			
NUMBER OF DRAWINGS:	30 Drawing Figure(s); 29 Drawing Page(s)			
LINE COUNT:	1850			

CAS INDEXING IS AVAILABLE FOR THIS PATENT.